

DOCKER

Docker is a platform that provides virtual containers on which an application can be deployed independent of the underlying OS of the server. Further the container can be created from a replica called docker image which contains all the dependencies and can run on any OS that has docker engine, with similar results.

DOCKER INSTALLATION IN UBUNTU

```
$ sudo apt update -y
```

```
$ sudo apt install docker -y
```

```
$ sudo service docker start (or) sudo systemctl start docker
```

```
$ sudo service docker enable (or) sudo systemctl enable docker
```

MAVEN INSTALLATION

```
sudo apt update -y
```

```
sudo apt install maven -y
```

```
mvn -version
```

JENKINS

Jenkins is an open-source automation tool written in Java programming language that allows continuous integration. Jenkins offers a straightforward way to set up a continuous integration or continuous delivery environment for almost any combination of languages and source code repositories using pipelines, as well as automating other routine development tasks.

The following are the main or most popular Jenkins use cases:

- Continuous Integration: With Jenkins pipelines, we can achieve CI for both applications and infrastructure as code.
- Continuous Delivery: You can set up well-defined and automated application delivery workflows with Jenkins pipelines.

Jenkins achieves CI (Continuous Integration) and CD (Continuous Deployment) with the help of plugins. Plugins are used to allow the integration of various DevOps stages. If you want to integrate a particular tool, you must install the plugins for that tool.

ADVANTAGES OF JENKINS:

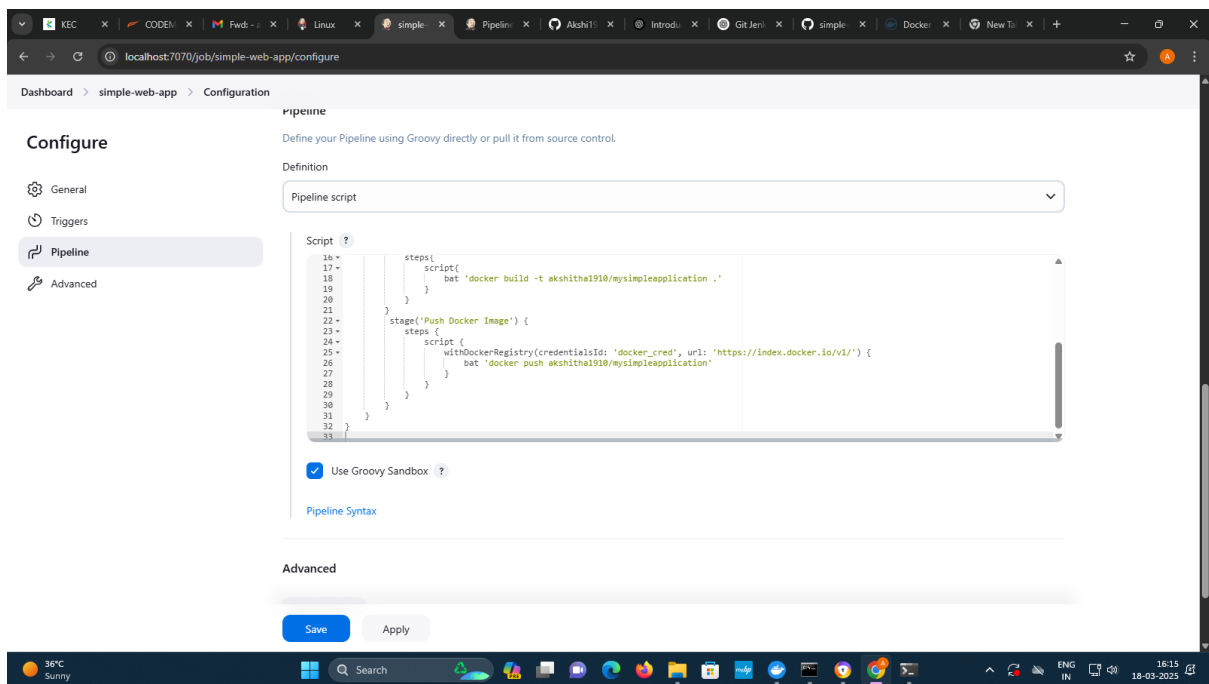
- It is an open-source tool.
- It is free of cost.
- It does not require additional installations or components. Means it is easy to install.
- Easily configurable.
- It supports 1000 or more plugins to ease your work. If a plugin does not exist, you can write the script for it and share with community.
- It is built in java and hence it is portable.
- It is platform independent. It is available for all platforms and different operating systems. Like OS X, Windows, or Linux.
- Easy support since its open source and widely used.
- Jenkins also supports cloud-based architecture so that we can deploy Jenkins in cloud-based platforms.

Creation of maven free style project

The screenshot displays the Jenkins Dashboard interface. The top navigation bar includes the Jenkins logo, a search icon, a user profile icon for 'Akshitha', and a 'log out' button. The left sidebar contains links for 'New Item', 'Build History', 'Manage Jenkins', and 'My Views'. The main content area shows a table of builds with columns for 'S' (Status), 'W' (Icon), 'Name', 'Last Success', 'Last Failure', and 'Last Duration'. The table lists three builds: 'maven', 'nginx', and 'simple-web-app'. The 'maven' build is successful, while 'nginx' and 'simple-web-app' are in progress. The bottom of the dashboard shows the 'REST API' and 'Jenkins 2.492.2' version information. The Windows taskbar at the bottom indicates a temperature of 36°C and the date 18-03-2025.

S	W	Name	Last Success	Last Failure	Last Duration
✓	☀	maven	1 hr 47 min #3	N/A	3 sec
✓	☀	nginx	4 hr 16 min #2	N/A	0.56 sec
✓	☀	simple-web-app	6 min 24 sec #4	1 hr 49 min #2	35 sec

PIPELINE SCRIPT :To push the image to my docker hub

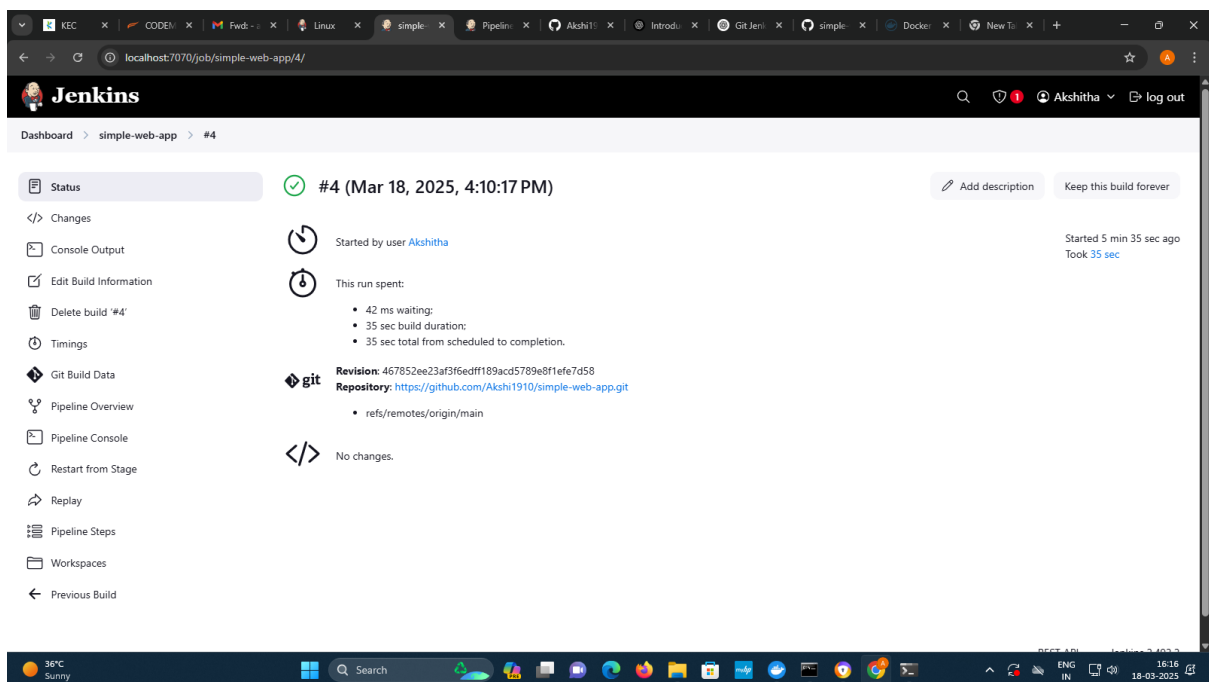


The screenshot shows the Jenkins Pipeline Configuration page for a job named 'simple-web-app'. The 'Pipeline' tab is selected in the left sidebar. The 'Definition' section shows a 'Pipeline script' dropdown. The script is defined in a text area with the following Groovy code:

```
16 +
17 +
18 +     script{
19 +         bat 'docker build -t akshitha1910/myimpleapplication .'
20 +     }
21 +
22 +     stage('Push Docker Image') {
23 +         steps {
24 +             script {
25 +                 withDockerRegistry(credentialsId: 'docker_cred', url: 'https://index.docker.io/v1/') {
26 +                     bat 'docker push akshitha1910/myimpleapplication'
27 +                 }
28 +             }
29 +         }
30 +     }
31 +
32 + }
33 +
```

Below the script, the 'Use Groovy Sandbox' checkbox is checked. There are 'Save' and 'Apply' buttons at the bottom of the configuration section.

BUILD SUCCESS

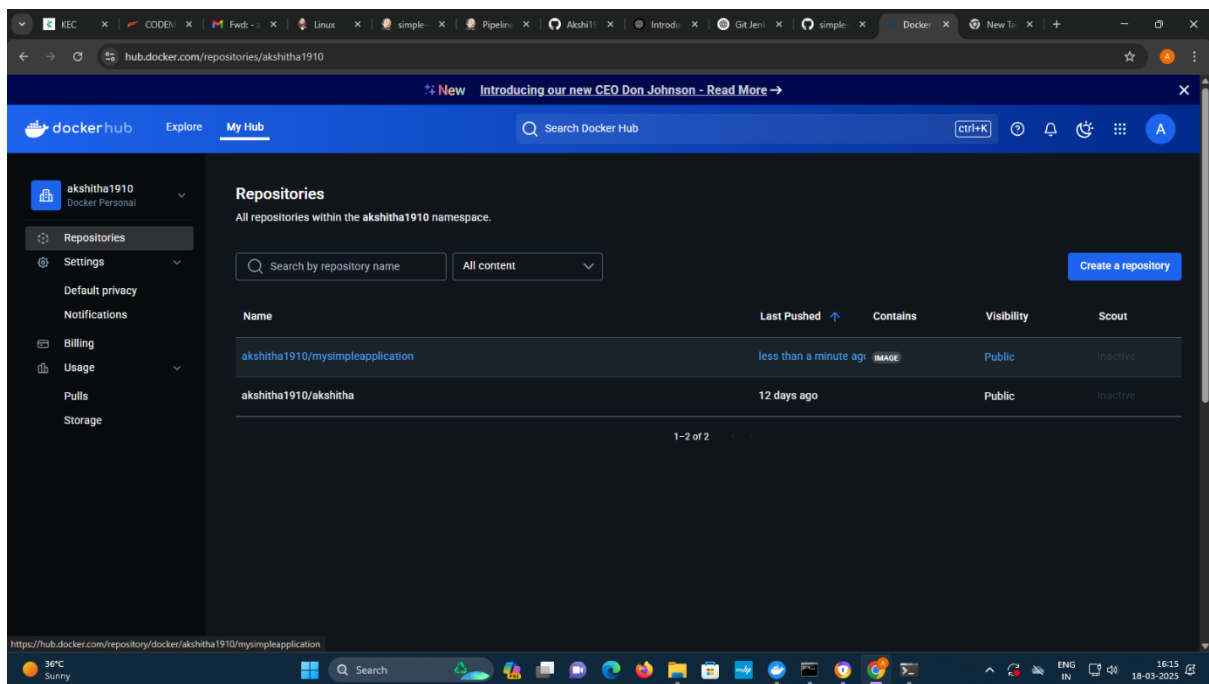


The screenshot shows the Jenkins Build Success page for build #4 of the 'simple-web-app' job, dated Mar 18, 2025, at 4:10:17 PM. The 'Status' tab is selected in the left sidebar. The build is marked as successful with a green checkmark. The page displays the following information:

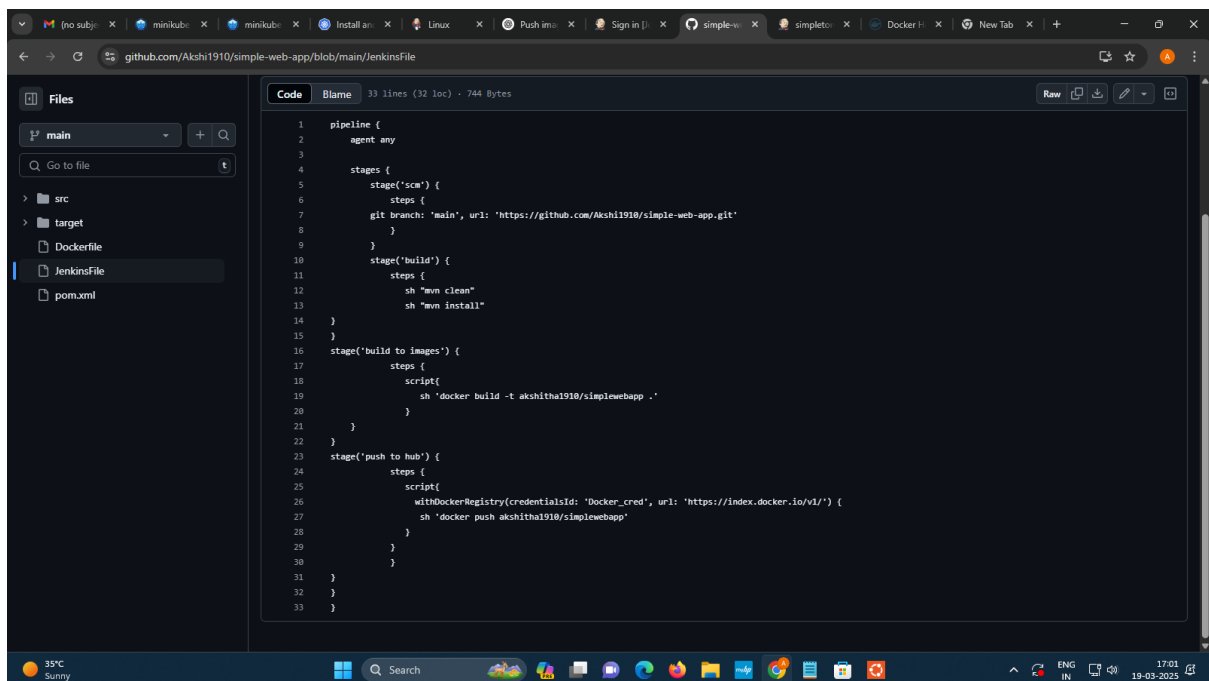
- Started by user Akshitha**
- This run spent:**
 - 42 ms waiting:
 - 35 sec build duration:
 - 35 sec total from scheduled to completion.
- git**
 - Revision:** 467852ee23af3f6edff189acd5789e0ffe7d58
 - Repository:** <https://github.com/Akshi1910/simple-web-app.git>
 - refs/remotes/origin/main
- No changes.**

The right sidebar shows 'Add description' and 'Keep this build forever' options. The bottom status bar indicates the build started 5 min 35 sec ago and took 35 sec.

Image pushed to docker hub: mysimplewebapplication is pushed to my docker hub



TOM CAT APPLICATION



Dashboard > simpletomcatapplication > #7

```
39cf8ac89a5a: Preparing
f844dcf94898: Preparing
3359bc3d7a6a: Preparing
4b7c81ed0534: Preparing
3359bc3d7a6a: Waiting
39cf8ac89a5a: Waiting
f844dcf94898: Waiting
4b7c81ed0534: Waiting
43c9f8a1dd61: Mounted from library/tomcat
5f70bf18a086: Mounted from library/tomcat
4e5b554b7345: Mounted from library/tomcat
bc05267c613b: Mounted from library/tomcat
3359bc3d7a6a: Mounted from library/tomcat
39cf8ac89a5a: Mounted from library/tomcat
19098ae09300: Pushed
f844dcf94898: Mounted from library/tomcat
4b7c81ed0534: Mounted from library/tomcat
latest: digest: sha256:9b9227b28504a732e5e45d8dc92748f65621fa8f1485f1b6ed0a563966e99a7c size: 2409
[Pipeline] }
[Pipeline] // withDockerRegistry
[Pipeline] }
[Pipeline] // script
[Pipeline] // stage
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```

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ENG IN 16:57 19-03-2025

Dashboard > simpletomcatapplication

Jenkins

Search Akshitha log out

Dashboard > simpletomcatapplication

Status ✓ simpletomcatapplication [Add description](#)

</> Changes

▶ Build Now

⚙️ Configure

🗑️ Delete Pipeline

📁 Stages

✎ Rename

🔍 Pipeline Syntax

Builds

Filter

Today

- ✓ #7 10:56 AM
- ✗ #6 10:47 AM
- ✗ #5 10:44 AM
- ✗ #4 10:38 AM
- ✗ #3 10:33 AM

Permalinks

- Last build (#7), 31 min ago
- Last stable build (#7), 31 min ago
- Last successful build (#7), 31 min ago
- Last failed build (#6), 40 min ago
- Last unsuccessful build (#6), 40 min ago
- Last completed build (#7), 31 min ago

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